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Interactive Computing

The Newsletter of the Association of Computer Users



Announcing
the rebirth of our
association...

and also in this issue—

- The Impact of New Technology on Small Business Computers
 - How Users Influence the Computer Services Industry

Enclosed For Members Who Subscribe
to the *Interactive Computing Directories*:

- II. Interactive Data-Base Systems
- VI. Management Sciences Programs
- XIII. Video Display Terminals

Enclosed For All Members:

1. ACU Articles of Incorporation and By-Laws
2. Press Review

Announcing the Rebirth of Our Association...

Editorial

Although we have no special crystal ball available to us, we cannot help but see continued growth and change in store for the computing industry and those involved in it. The pace of technological advancement and programming sophistication which has brought such breathtaking changes during the '70s shows no sign of slowing down as we move into the next decade. Desktop computers, word processors, and satellite communications services, to name just a few areas of the industry, will be making significant advances during the next ten years. Hand held language translation machines are already on the market. And it seems likely that sometime during the 1980s a computer program will outplay international grandmasters at chess, an event which will mark a new maturity in the field of artificial intelligence.

It is a time of change for the computing industry. And, as new developments unfold, the choices users face in selecting between competing brands and technologies will become increasingly difficult. Accurate across-the-board comparisons of the offerings will be even more important in the future. In meeting this challenge, we ourselves fully expect to be put to the test. It's about time, we feel, to expand our vision and to enlarge our goals.

At our annual meeting on April 4, 1979, I'm happy to announce, the Association of Time-Sharing Users and the Association of Small Computers Users embarked on a broad reorganization plan. To expand the services available to members and to better serve the growing network of computer users, ATSU and ASCU have merged into a single group which will also address the issues faced by those using medium and full-size computers. Our new organization will be called the Association of Computer Users.

This step is a further development along the same lines as past growth. Beginning in 1974, ATSU was formed to help time-sharing users make the best use of the resources available to them. As the computer industry evolved, it became possible for some computing equipment to be brought in-house at a cost comparable to time-sharing, and ASCU was created to help in making those decisions. At about the same time, we began a program of comparing various brands of data processing equipment by running identical benchmark programs and timing the results. We found that similar price tags and external appearances can be deceiving. Wide disparities in performance were revealed by our first series of benchmark tests on small computers.

Exploding the Myth

In developing and expanding our benchmark

program, we have sought to explode a common myth about computers—the myth that price tags, appearances, or even product specifications provide a guide to capabilities. Incredible as it seems, we've found enormous disparities—as much as a factor of 20—in the performance of similarly-priced computers running the same task.

But our vision does not end there. The importance of ACU lies in our unbiased, consumer-oriented approach to the industry. While many choose to speak in mumbo-jumbo and public relations phraseology, we prefer to let the facts speak for themselves. Despite the very green pastures this industry offers to entrepreneurs, we feel there should be no sacred cows. By cutting through the claims and exposing the facts—as our benchmark evaluations have done—we aim to make our members the best-informed computer users they can be.

In forming the Association of Computer Users, our mandate, in my opinion, is to extend our reach into all aspects of the computing industry. The goal of our benchmark program should be to eventually include **every** major computer offering, regardless of size or cost.

The results, I'm confident, will be most revealing, and as members of ACU, we will be the first to receive of them. They'll run the spectrum of data processing equipment from desktop to maxi, and

from stand-alone to distributed networks.

ACU's New Sections

To better represent users from different segments of the industry, the Association will contain a number of sections, including time-sharing and small computer sections, the continuations of ATSU and ASCU. Our Council, after much discussion, chose the following tentative list of seven sections. While the names and breakpoints between sections are admittedly arbitrary, the groups will serve a vital purpose in helping us meet the specific needs of each member.

- **Small Computer Section** — for users of several computing systems which, fully configured, cost under \$50,000.
- **Midi-Computer Section** — for users of systems falling into the price range between \$50,000 and \$200,000.
- **Large Computer Section** — representing users concerned with computers in the over \$200,000 category.
- **Time-Sharing Section** — for users of commercial and in-house time-sharing systems.
- **Distributed Processing Section** — for those interested in multi-location systems which preprocess information on location.
- **Word Processing Section** — for word processing users.
- **Home and Hobbyist Section** — for personal computing enthusiasts.

I should emphasize that this list of groups is by no means finalized. It is, instead, the Council's first crack at the concept of a truly universal organization for computer users with all sorts of special needs. The next step is to find out where you, the members, wish to be involved, and to receive your reactions and suggestions as we go

about forming these sections. I am most interested in obtaining your comments and advice.

For the remainder of this calendar year, the present ATSU-ASCU structure will continue, with benefits the same or better than originally promised. Then, as members renew for the 1980 calendar year, they will select the ACU section or sections they wish to join.

Within this structure, ACU will continue to grow and evolve along with its members and the entire industry. As your computing needs and your interests change, we hope you will find within ACU the resources to meet whatever challenges arise.

Benchmarks Vital to Users

Where do we go from here? For the immediate future, we're embarking on an expansion of our benchmark studies into three new areas. Previous benchmarking covered a group of small computers in the \$15,000 to \$25,000 price range. Now we're about to commission a similar series for under \$15,000 microcomputers. And we're beginning to discuss the framework of reports on large computers and word processing systems.

A central focus of the Association's services, the benchmark studies allow objective, thorough price performance comparisons of computing products. I feel the reports are a key aspect of the Association's commitment to research. As an independent, non-profit user organization, we should have a broad outlook toward the world of modern computing.

During the past five years, we've watched the number and sophistication of time-sharing and small computer users grow and evolve. Now, with the formation of the Association of Computer Users, we at last have a single, comprehensive group ready to investigate the complete spectrum of computing problems. hs

The Impact of New Technology on Small Business Computer Vendors and Users

by
Greg Leveille, Senior Research Analyst
Creative Strategies International

Over the next five years, technology, more than any other factor, will have the most profound effect upon the small business computer industry. Small business problems and the need for economic data processing solutions have always existed; but, only recently has the small business computer (SBC) begun to exist as an affordable solution for that great mass of smaller firms—and mostly because of the rapidly declining cost of technology.

In the next five years, the average cost of SBCs will rapidly decline even though the level of systems performance will constantly improve. During this period of change, a plethora of new vendors and products will emerge and many vendors will succumb to the high risk of failure. The average end-user will receive much more bang for his buck, many end-users will get stuck with a poor product choice, and the SBC will become a commonplace business appliance.

The New Technologies

Future SBC price/performance ratios will be affected by new advancements from many different data processing technologies. A small business computer system is nothing more than a large business appliance, constructed from numerous smaller components. These parts include semiconductor components, computer memory, microprocessors, printers, data storage peripherals, data communications devices, video display terminals, and computer software.

In each of these areas new developments are producing performance increases and cost reductions.

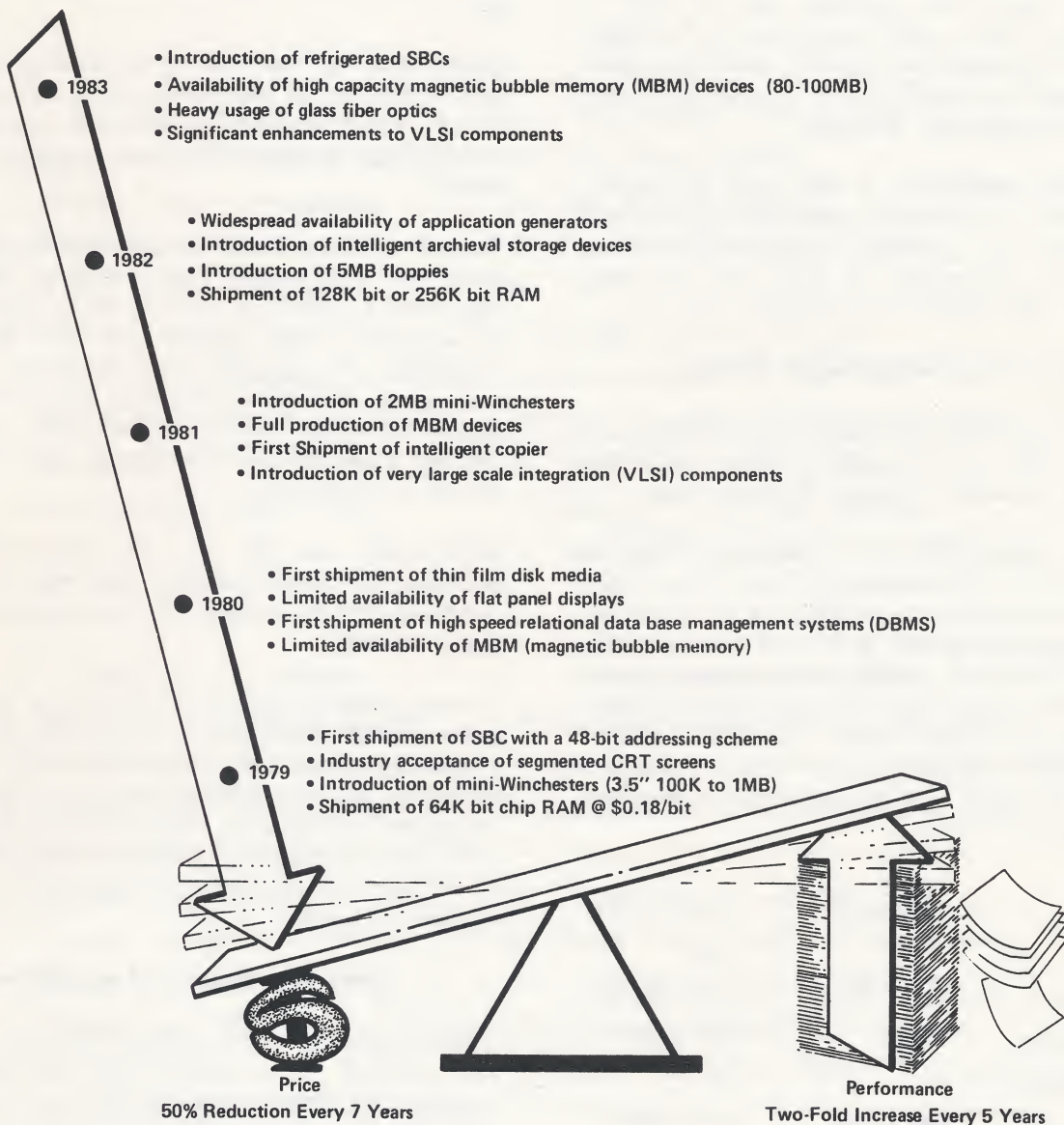
Future developments in these areas will include:

- **Semiconductor components.** Chip density and performance improvements are constantly occurring as a result of a better understanding of silicon, the predominant semiconductor material—and by the application of new techniques in materials, processing, tooling, and packaging. Meanwhile, production costs are on the decline.
- **Computer memory.** Based on advancements in semiconductor technology, SBC memory units continue to provide faster memory access and memory cycle times and consequently minimize the effect of information movement within the system. Random access memory which costs around 8 cents per byte of

information storage in 1979, will only cost around 1 cent per byte in 1983.

- **Microprocessors.** Also based on semiconductor components, these logic devices are becoming more intelligent and powerful while slightly decreasing in price. By 1985, these devices will process as many as five times more machine instructions per second than they do today.
- **Printers.** Many new exotic technologies will be applied to create a wide variety of printers with each type filling a different price/performance niche in the market. These new printer products will employ technologies such as thermal printing mechanisms for heat sensitive paper, electrosensitive printing mechanisms for special chemically-coated paper, laser beams, optical character recognition and ink jet guns. We predict that during the next several years average printer prices will decline by at least 40 percent.
- **Data communications devices.** Currently, the movement, or communication, of data between computers normally takes place at relatively slow rates of speed (2,400 or 4,800 characters per second). By 1983, very high rates of speed (9,600 to 56,000 characters per second) will be the norm—and will oftentimes be required to keep up with the faster thinking computers.
- **Video display terminals.** The design empha-

THE EFFECTS OF TECHNOLOGY ON THE SMALL BUSINESS COMPUTER SYSTEM



Source: Creative Strategies International

sis of most vendors is centered around making the video display more friendly and intelligent. These displays will, in effect, become the head or face of the small business computers of the 1980s. They will have the ability to ask a wide range of simple tutorial questions, sometimes audibly, which the operator will be able to respond to with a slight depression of a single key. The confusion and mystery which normally surrounds the installation of a new computer will be considerably lessened.

- **Computer software.** In the next five years, the number of computer software tools for any one system will probably triple. Furthermore, each new succession of tools will be more powerful and easier to use than the last.

New Price/Performance Ratios

As a result of these forecasted advancements in technology, SBC vendors will be able to offer the users more powerful systems for less cost.

IBM's new System/38 (First Customer Ship in 1979) will deliver approximately three to four times as much performance capabilities as its predecessor, the System/3 Model 15 (First Customer Ship in 1974). Additionally, S/38 configurations are as much as three times less expensive than comparable System/3 configurations. This IBM comparison provides a typical example of the price/performance increases that are expected throughout the forthcoming years.

	System/3	System/38
Model	15D	5381
Main Memory	256K Bytes	512K Bytes
Mass Storage	90MB	130 MB
Video Displays	1	1
Line Printer	600 LPM	650 LPM
Purchase Price	\$281,000	\$94,000

An Expanded Market

These new lower price/performance ratios for SBCs are not only prompting most current users to expand their usage of SBC devices, but these new ratios are attracting many new sales prospects.

Every year, as the cost of technology decreases and as the cost of labor and money increases, new sets of small business applications become more economical to automate than to leave unautomated.

Because of these variables, the majority of current users are accelerating their usage of SBC techniques at a maximum rate of pace. Their rate of acceleration is only slowed down by a shortage of available time, people, and financing. It is a well known fact that more than 60 percent of the annual revenues of the largest SBC vendors is derived from add-on-value orders from previously installed customers.

Additionally, as the cost of entry level small business computers declines, vast new markets of potential buyers emerge that were previously not approachable.

A very small business with an annual revenue of approximately \$250,000 normally can't afford more than a 2 percent annual expenditure (\$5,000) for a computer system. *Several years ago a \$5,000 SBC simply did not exist. In the last 12 months, at least 10 vendors introduced a \$3,000 to \$10,000 system. By 1983 at least 50 major vendors will have such a system available.*

New Vendors and Products

The increase in market demand for SBC products has resulted in an unparalleled increase in the number of systems suppliers. Five years ago, there were less than 50 vendors. At year end 1979, there will be more than 300 active participants, including manufacturers, system integrators, and retail outlets. By 1983, there should be at least 600

**PROJECTED IMPACT OF NEW TECHNOLOGY
ON SMALL COMPUTER USERS AND VENDORS**

1979 — 1983

Benefits For Users

- More System for Less Money
- Wider Choice of Vendors
- Wider Choice of Products
- More Powerful Software
- More Learning Tools
- Greater Understanding of SBC's
- Easier to Automate with SBC's
- Lower Entry Level Costs
- Incremental Growth Path

Drawbacks For Users

- Too Many Vendors
- Too Many Products
- Too Many Decision Criteria
- Hard to Separate Fact From Fiction
- Longer Decision Cycles
- Susceptability To Poor Decisions
- Short Supply of Skilled Personnel
- Rising Cost of EDP Labor
- Difficult To Change Vendors
- Complexities of Long Range Planning

Benefits For Vendors

- Increase in Computer Speed
- Increase in System Capabilities
- Smaller SBC Components
- Decrease in Manufacturing Costs
- Increase in Economy of Scale
- Greater System Reliability
- Lower Maintenance Costs
- Increase in SBC Market Demand
- Price Elasticity
- New Markets for SBC Products

Drawbacks For Vendors

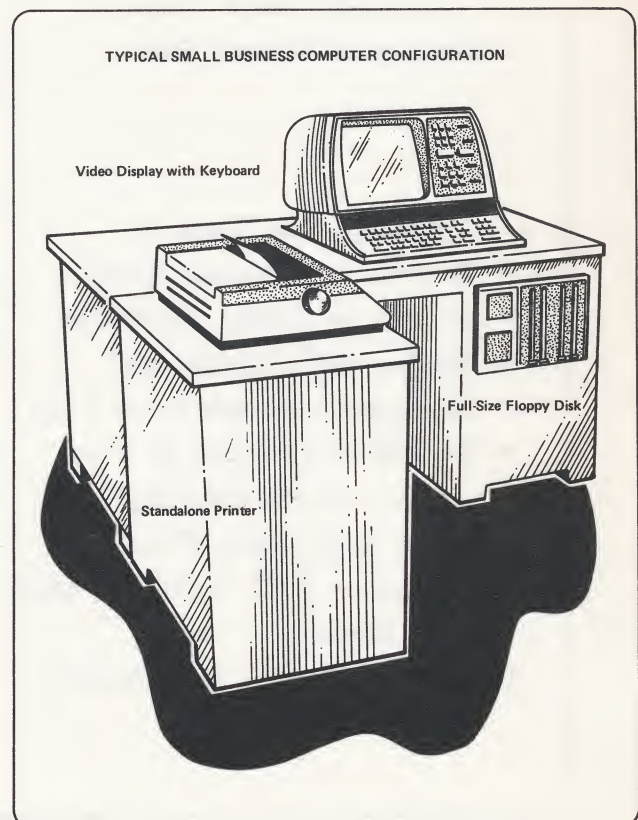
- Increase in Number of Competitors
- Increase in Number of Competing Products
- Increase in Rate of Market Change
- Variety of Distribution Methods
- Vulnerability of Installed Base
- Harder To Increase Market Share
- Longer Pre and Post Sale Periods
- Increase in Marketing Overhead
- Limited Supply of High Tech Components
- Limited Supply of Trained Personnel

competitors. Additionally, in an effort to remain competitive and to create a captive market from their installed base of users, every vendor will attempt to establish a very broad product line.

Opportunity vs. Risk

In conclusion, the next five years will present significant opportunities and risks for both vendors and users of small business computers. In 1978, 58,000 SBCs were shipped worldwide; but, during the 1979 to 1983 period more than 814,000 small business computers, priced in the \$5,000 to \$100,000 range will be shipped to new and existing customers. However, the competition for business will be fierce and many of the SBC suppliers in the business today will not be in business by 1983. Likewise, during this period of transition many unsuspecting users will acquire an inadequate system and/or vendor.

Supported by a rapid technological pace in performance improvements and cost reductions, the years ahead promise both a high potential for success as well as for failure. With success comes profit, and with failure comes experience as the SBC industry moves into its most dynamic growth period ever.



How Users Influence The Computer Services Industry *The Results of a User Survey*

By Jean S. Chaloux
Quantum Science Corporation

What trends are developing in the computer services industry? How are users' EDP environments changing? And what role are users playing in the development of this industry?

To help answer these questions, Quantum Science Corporation arranged to survey members of the Association of Time-Sharing Users and to report the results in this newsletter. Below, we are happy to present the highlights of the survey.

The results point to some important trends among computer services users and the influence they exert on the computing services industry. In particular, the survey provides us with insights into three general areas:

- The role of the time-sharing coordinator,
- The increasing selectivity by users in the use of computer services, and
- The reaction of users to the newly introduced systems combining small computers with outside time-sharing systems.

The Role of the Time-Sharing Coordinator

It is clear that in most large corporations a formal means for controlling the use of computing services has developed. This control is usually maintained by the time-sharing coordinator and is designed to maximize the use of outside services by extending data processing capabilities in areas where needed.

By and large, the typical survey respondent was a person responsible for purchasing and for controlling his organization's use of time-sharing and other outside computer services. The coordinator provides individual end-users within his company with the interface needed to deal with outside computer services vendors, while maintaining control over spending at the organizational level. In this way, end-users get the services they need within the context established by the corporation.

In many respects, this position mirrors the position of the computer services industry itself. Just as the services companies translate raw computer power into end-user capabilities, so the time-sharing coordinator integrates a control function with end user needs, providing the corporation with the leverage to maximize their use of data processing resources. In light of this, it is not surprising that 80% of the 104 ATSU Members surveyed are located at their firms' headquarters or main offices.

Based on the survey results, the typical ATSU member performs the following functions related to his purchasing activities:

- Evaluates application needs and requests,
- Evaluates potential suppliers of the needed services, and
- Selects vendors to be used for a particular application.

However, these activities are typically not the only ones performed by the ATSU member: 95% of the respondents indicated that they have other job responsibilities far beyond the purchasing of outside computer services. A significant number of the survey participants get involved in the purchase of other EDP related services. For example:

- 50% are responsible for the purchase of software services including contract programming, software packages and systems design, and
- 20% are responsible for a myriad of other purchases — including minicomputers, technical services and word processing systems.

In addition, over half of the respondents are responsible for the purchase of EDP services on a corporate-wide basis, and less than 20% were concerned with activities strictly at their own location. These responses suggest that within most large corporations the purchasing of time-sharing and related data processing services from external

sources is a significant issue, fully warranting the dedication of at least one individual's attention for liaison with users, control and evaluation.

Small Companies Often Get Top Management Involved

It is interesting to note that within small companies this issue is just as weighty. In another Quantum Science survey of more than 200 small businesses using outside processing services, the organization's President or Controller was responsible for the selection of the service in 55% of the cases. Within industries where the typical business unit is particularly small — e.g., law, engineering and accounting firms — the participation of top management is even more likely.

Users Rate Key Factors in Vendor Selection

One common role that the time-sharing coordinator plays is in establishing standards for evaluating computer services vendors and setting criteria for selecting new ones. How this is done and which factors are used is a major issue for users and vendors alike. The market is competitive: 50 (or so) companies provide time-sharing, software and other support services and compete for about two-thirds of all user dollars in these areas.

ATSU members were asked to indicate the priorities they use in selecting a particular vendor for their organization's use. The result:

- The existence of proprietary software packages or data bases was ranked most important by more than one-third of the respondents. The premium placed on such proprietary services reflects the growing need of large corporate users for efficient handling of specialized data processing applications. Fortunately, vendors are becoming increasingly aware of this need, with most vendors specializing in one or more specific application areas.
- Vendors' reputations rank as the next most important consideration. Despite the overall

level of maturity of this industry, users are still wary of suppliers lacking longevity, experience and/or the commitment to solve problems.

- In addition, it was no surprise that low cost ranked as one of the top three criteria for over 60% of the respondents.

Applications Overview: Majority Handle Administrative Tasks

ATSU members were asked to summarize the types of end-user applications for which outside computer services are being used. As expected, the majority of users indicated that they used outside services in conjunction with general-administrative (G&A) and planning-support applications. A more detailed rundown of responses is shown below:

- Of the 60% performing G&A applications, most are using forecasting packages and tools; a significant proportion are also handling market research applications.
- Nearly 55% of the respondents indicated that they use data base management systems; and almost all users take advantage of the high level languages like Fortran and APL offered by outside service companies.
- The use of outside service companies for financial reporting occurs among at least 40% of the respondents. In contrast, industry-oriented applications such as manufacturing and control are performed by less than one-fourth of the respondents.

New Hardware/Service Concept Introduced

Further evidence of the dynamic nature of the computing services market is the new introduction by several traditional time-sharing companies of services tied to a small computer system on the user's site, connected by telephone lines to the vendor's larger computer. Referred to as integrated or bundled hardware/services, this approach

allows users to benefit from the service company's proven expertise and familiarity with their problems, in addition to the availability of a variety of application software, while allowing users to exert more direct control over their processing. In many respects, an integrated hardware/service solution resembles a turnkey system approach.

ATSU members expressed qualified interest in such systems:

- One-fourth like the idea that a single vendor would provide both hardware and software on their location.
- An equal number identified other attractive aspects, e.g., cost for computer services could be minimized, while specialized application software remained readily available.
- But other users expressed the problem of being even more "locked into one vendor" by such an arrangement.
- Nearly 50% use or plan to use a dedicated in-house system for end-user applications, and 25% plan to obtain such a system from a service vendor rather than a hardware manufacturer.

In conclusion, ATSU members were also asked to rate in importance the key trends within their organizations that will impact future use of outside computer services. Here are the results:

- Increased demand for specialized application programs is viewed as the most significant trend. One-third of the respondents rated this trend as number one in importance; 40% rated it second or third.
- The implementation of internal time-sharing capability by their firms was rated the most important trend by an additional 33% of the respondents.

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Zeta Research

* Previous Corporate Associate Members of ATSU are now shown as Corporate Associate Members of ACU.

**New Member.

Companies supplying computing products or services are eligible to apply for Corporate Associate Membership by writing to the Association.

As a result, the computer services industry will undoubtedly need to keep changing to keep up with its customers. In fact, the vendors are diversifying to supply new products and services that suit the end-user's needs, and this demonstrates that users are setting the pace in this dynamic market.

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Become a local contact for your area. Your name and telephone number will be listed on this page in each issue of *Interactive Computing*, enabling other members to contact you with their questions. Only users, not suppliers, are eligible to apply by writing to the Association. Please specify which of the following Sections you would like to serve for:

- Time-Sharing Section
- Small Computer Section
- Midi Computer Section
- Large Computer Section
- Distributed Processing Section
- Word Processing Section
- Home and Hobbyist Section

* Council Members for 1979



Interactive Computing

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